

WHAT IS CLAIMED IS:

1. An electric vehicle, comprising:
 - an electric motor which outputs power to an axle shaft;
 - a drive circuit of the electric motor;
 - a fuel cell which is electrically connected to the electric motor such an electric power of the fuel cell is supplied to the electric motor via the drive circuit; and
 - a capacitor which is connected in parallel to the fuel cell, whereina maximum output of the fuel cell and a capacitance of the capacitor are set such that a first running condition for obtaining a predetermined high vehicle speed by repeatedly starting the vehicle at maximum acceleration required of the vehicle and a second running condition for repeatedly changing a vehicle speed from a first medium vehicle speed to a second medium vehicle speed at the maximum acceleration required of the vehicle are satisfied.
2. The electric vehicle according to claim 1, wherein
 - the capacitance of the capacitor is set so as to be with in a predetermined range over a minimum capacitance which satisfies the first running condition and the second running condition when the fuel cell is operated in a range up to the maximum output that is set in the fuel cell.
3. The electric vehicle according to claim 1, wherein
 - the maximum output of the fuel cell is set so as to be within a predetermined range over a minimum output that satisfies the first running condition and the second running condition when the capacitor is operated in a range of the capacitance which is set in the capacitor.
4. The electric vehicle according to claim 1, wherein
 - the maximum output of the fuel cell and the capacitance of the capacitor are set so as to be in a predetermined range including a point at which a minimum relationship between the maximum output of the fuel cell and the capacitance of the capacitor that is required for satisfying the first running condition and a minimum relationship between the maximum output of the fuel cell and the capacitance of the capacitor that is required for satisfying the second running condition overlap each other.

5. The electric vehicle according to claim 1, wherein
the maximum output of the fuel cell and the capacitance of the capacitor are set such
that a cost of the fuel cell and the capacitor is substantially minimum.
6. The electric vehicle according to claim 1, wherein
when a vehicle weight is approximately 2t, the fuel cell and the capacitor are used at
a voltage of 240 to 500V, the maximum output of the fuel cell is set to a value near
95kW, and the capacitance of the capacitor is set to a value near 7F.
7. The electric vehicle according to claim 6, wherein
a maximum output of the electric motor is set to a value near 85kW.
8. The electric vehicle according to claim 1, wherein
the maximum output of the electric motor is set to a value substantially equal to a
sum of the maximum output of the fuel cell and a maximum output of the capacitor at
an operating voltage of the fuel cell which is operated so as to produce the maximum
output.
9. The electric vehicle according to claim 1, wherein
the drive circuit is a inverter.
10. The electric vehicle according to claim 9, wherein
the inverter converts an electric power which is obtained by performing regenerative-
control of the drive motor to direct current power, and
the capacitor stores the direct current power.
11. The electric vehicle according to claim 1, wherein
the capacitor is an electric double layer capacitor.
12. A performance setting method for setting performance of a fuel cell and performance
of a capacitor, which are to be mounted on an electric vehicle that runs by supplying
electric power from the fuel cell and the capacitor to a drive circuit of an electric motor
which can output power to an axle shaft without converting a voltage of the electric

power, comprising:

setting a maximum output of the fuel cell and a capacitance of the capacitor such that a first running condition for obtaining a predetermined high vehicle speed by repeatedly starting the vehicle at maximum acceleration required of the vehicle and a second running condition for repeatedly changing a vehicle speed from a first medium vehicle speed to a second medium vehicle speed at the maximum acceleration required of the vehicle are satisfied.

13. The performance setting method according to claim 9, wherein

the capacitance of the capacitor is set so as to be within a predetermined range over a minimum capacitance which satisfies the first running condition and the second running condition when the fuel cell is operated in a range up to the maximum output that is set in the fuel cell.

14. The performance setting method according to claim 9, wherein

the maximum output of the fuel cell is set so as to be within a predetermined range over a minimum output which satisfies the first running condition and the second running condition when the capacitor is operated in a range of the capacitance that is set in the capacitor.

15. The performance setting method according to claim 9, wherein

the maximum output of the fuel cell and the capacitance of the capacitor are set so as to be in a predetermined range including a point at which a minimum relationship between the maximum output of the fuel cell and the capacitance of the capacitor that is required for satisfying the first running condition and a minimum relationship between the maximum output of the fuel cell and the capacitance of the capacitor that is required for satisfying the second running condition overlap each other.

16. The performance setting method according to claim 9, wherein

the maximum output of the fuel cell and the capacitance of the capacitor are set such that a cost of the fuel cell and the capacitor is substantially minimum.